Space Day:
Prospecting for Knowledge

17-How Much Do You Weigh – Teacher Page

Purpose: To understand that weight is a measure of gravitational attraction and that this force is not the same on each planet.

Materials: "New" Weight Chart; Calculator; Bathroom scale

Background: Gravity is a universal, natural force that attracts objects to each other. Gravity is the pull toward the center of an object; let's say, of a planet or a moon. When you weigh yourself, you are measuring the amount of gravitational attraction exerted on you by Earth. The Moon has a weaker gravitational attraction than Earth. In fact, the Moon's gravity is only 1/6 of Earth's gravity. So, you would weigh less on the Moon. How much would you weigh on the Moon and on the other planets?

Procedure:

1. Write your weight (or an estimate) here:

2. For a different planet, multiply your weight by the number given in the "New" Weight Chart.

    Example for the Moon - for a person weighing 60 pounds on Earth:

    60 x 1/6 = 10

    A 60 pound person would weight 10 pounds on the Moon!

3. Follow the example and fill in the blanks in the "New" Weight Chart. Show your work.

Note for Space Day:

Encourage students to calculate 2-3 weights. Encourage them to work in groups to complete an entire chart.
the goal is simply to get the concept.

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17-How Much Do You Weigh – Student Page

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   Example for the Moon - for a person weighing 60 pounds on Earth:

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3. Follow the example and fill in the blanks in the "New" Weight Chart. Show your work.

"New" Weight Chart

Planet	Multiply Your Earth Weight By:	Your "New" Weight
Mercury	0.4	
Venus	0.9	
Earth	1	
Moon	0.17	
Mars	0.4	
Jupiter	2.5	
Saturn	1.1	
Uranus	0.8	
Neptune	1.2	
Pluto	0.01	

Activity courtesy of University of Hawaii Institute of Geophysics and Planetology

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